

Preface

The twenty-fifth anniversary of the Mathematical Sciences Department of the IBM Research Division is a good time to pause and take stock. It is time to celebrate past achievements, and to anticipate those which will be coming in the next quarter century.

This issue is devoted to papers which were presented in a special conference on Mathematics and the Science of Computing, which was held in December 1985, to celebrate the first twenty-five years in the life of the department. It presents the thoughts of the people who helped start the department and give it its direction; it represents the contributions of members of the department, some who have been with us for most of our existence and some who have joined us recently; and it includes papers of alumni and friends of the department.

An industrial research department devoted to mathematics and its applications is a recent phenomenon on the national scene, and was even more so around 1960 when the department was launched. In this issue we hear from the first three directors of the department, Herman Goldstine, Ralph Gomory, and Hirsh Cohen, about the early days of the department, science in industry, and applied mathematics.

It is impossible to cover, in a single issue, all the areas of mathematics and its applications in which the department and its members have been active. It is not possible to even

attempt to describe all the contributions of the department members over the past twenty-five years. So this issue is only a sampler of the varied activities and beautiful results which constitute the work of the department. It describes results in differential equations and statistics, in mathematical programming and numerical analysis, in approximation theory and theoretical computer science, in symbolic dynamics and computing the Fourier Transform. It describes results in mathematics and the application of mathematics to other areas. In short, it is a snapshot of the scientific life of the department.

I cannot end this introduction without expressing my personal sense of pride in the department, its members, and their achievements—those which are described in this issue and the many more which are not.

Finally, a word of thanks. Neither the conference nor this issue would have been possible without the tireless work and dedication of the organizing committee: Willy Miranker, Alan Hoffman, and Dave Sayre. I want to express my gratitude to them, as well as the gratitude of the whole department, for giving us the opportunity to celebrate our twenty-fifth anniversary in such a fitting manner.

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